

Supplementary information: A multilocus sequence typing scheme of
Pseudomonas putida for clinical and environmental isolates

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Table S1. Strains used in this study

isolate	Reference	country	year	source	detailed_source	disease	Accession numbers in pubMLST database										Digital DDH (%) (Query: KT2440)	
							ST	genes										
								<i>argS</i>	<i>gyrB</i>	<i>ileS</i>	<i>nuoC</i>	<i>ppsA</i>	<i>recA</i>	<i>rpoB</i>	<i>rpoD</i>			
ND6	NC_017986.1	China		environmental	industrial wastewater		59	38	14	8	4	10	12	1	6	74.1		
KT2440	NC_002947.4	Japan		environmental			58	37	44	3	45	2	1	1	1	100.0		
S12	NZ_CP009974.1	The Netherlands	1989	environmental	soil		19	12	45	6	3	19	4	1	2	76.1		
BIRD-1	NC_017530.1	Unknown		environmental	soil		20	12	46	7	3	16	5	1	2	74.5		
JB	NZ_CP016212.1	Czech Republic	2000	environmental			21	12	46	7	3	21	6	1	3	75.2		
DOT-T1E	CP003734.1	Unknown		environmental			44	31	47	10	4	8	7	1	8	73.1		
B6-2	NZ_CP015202.1	Unknown		environmental			22	13	13	3	44	3	11	1	9	76.0		
SJTE-1	NZ_CP015876.1	China		environmental	soil		60	38	14	9	4	9	12	1	6	76.1		
F1	NC_009512.1	Unknown		environmental			45	31	14	8	4	13	12	1	6	75.6		
GB-1	NC_010322.1	Unknown		environmental			61	39	48	8	46	11	14	4	14	61.4		
S13.1.2	NZ_CP010979.1	France	2008	environmental	soil		63	40	49	28	47	12	15	12	25	57.2		
PP112420	NZ_CP017073.1	China	2011	clinical	urine	urinary tract infection	62	39	48	15	48	11	14	4	14	61.6		
H8234	NC_021491.1	France		clinical	blood	septicaemia	23	14	10	33	9	32	17	12	23	54.8		
NBRC 14164	NC_021505.1	Unknown		clinical			2	3	15	29	5	17	20	10	21	60.2		
W619	NC_010501.1	Unknown		environmental	soil		64	41	50	42	49	48	29	18	48	48.5		
HB3267 (PC9)	NC_019905.1	France		clinical			18	11	24	20	15	39	33	7	28	59.0		
DLL-E4	NZ_CP007620.1	China	2000	environmental	soil		65	42	51	21	50	23	34	7	31	58.8		
S16	NC_015733.1	Unknown		environmental			66	42	51	21	50	46	34	7	31	59.4		
1A00316	NZ_CP014343.1	Unknown	2013	environmental	soil		67	43	52	60	51	44	45	23	61	41.2		
PC2	NZ_CP011789.1	China		environmental	seed		68	44	53	68	52	53	54	26	67	37.6		
NCGM_2	This study	Japan	2017	clinical	sputum	pneumonia	30	20	42	36	12	37	52	19	51	46.5		
NCGM_3		Japan	2017	clinical	pharynx	other	7	6	6	50	26	33	59	13	37	50.6		
NCGM_4		Japan	2017	clinical	eye discharge	other	9	8	11	51	31	51	55	20	52	43.1		
NCGM_5		Japan	2017	clinical	eye discharge	other	9	8	11	51	31	51	55	20	52	43.3		
NCGM_6		Japan	2017	clinical	eye discharge	other	50	36	38	71	38	56	64	15	59	36.2		
NCGM_7		Japan	2017	clinical	spem	other	10	8	11	52	31	51	55	20	53	43.3		
NCGM_8		Japan	2017	clinical	eye discharge	other	51	36	36	74	40	59	65	15	59	36.9		
NCGM_9		Japan	2017	clinical	foreskin	other	27	18	26	46	22	41	24	21	41	47.3		
NCGM_10		Japan	2017	clinical	otorrhea	other	42	30	32	41	30	50	31	17	46	48.7		
NCGM_11		Japan	2017	clinical	urine	urinary tract infection	8	7	4	49	23	33	59	13	38	52.5		
NCGM_12		Japan	2017	clinical	urine	urinary tract infection	40	28	17	39	28	31	27	7	55	49.8		
NCGM_14		Japan	2017	clinical	wound	wound infection	28	18	26	46	22	41	24	21	42	50.4		
NCGM_15		Japan	2017	clinical	nasal cavity	other	29	19	31	44	20	42	26	21	40	49.9		
NCGM_16		Japan	2017	clinical	vaginal discharge	other	4	5	2	48	24	34	59	13	34	51.4		
NCGM_17		Japan	2017	clinical	skin	other	46	32	20	16	14	30	40	6	17	57.0		
NCGM_18		Japan	2017	clinical	urine	urinary tract infection	15	11	24	20	15	20	33	7	28	58.2		
NCGM_19		Japan	2017	clinical	comea	other	9	8	11	51	31	51	55	20	52	41.5		
NCGM_20		Japan	2017	clinical	skin	other	3	4	5	50	25	33	57	13	35	50.3		
NCGM_21		Japan	2017	clinical	urine	wound infection	52	36	35	71	38	58	64	15	58	37.5		
NCGM_22		Japan	2017	clinical	vaginal discharge	other	9	8	11	51	31	51	55	20	52	42.8		
NCGM_23		Japan	2017	clinical	pharynx	other	26	17	25	45	21	40	25	21	43	50.0		
NCGM_24		Japan	2017	clinical	skin	other	11	8	11	52	31	51	56	20	52	42.6		
NCGM_25		Japan	2017	clinical	urine	urinary tract infection	33	24	43	37	10	38	51	19	49	47.1		
NCGM_26		Japan	2017	clinical	urine	urinary tract infection	9	8	11	51	31	51	55	20	52	41.5		
NCGM_27		Japan	2017	clinical	wound	wound infection	53	36	37	75	41	60	67	15	59	35.7		
NCGM_30		Japan	2017	clinical	blood	septicaemia	34	25	29	58	35	46	43	23	62	40.2		
NCGM_31		Japan	2017	clinical	sputum	pneumonia	53	36	37	75	41	60	67	15	59	36.0		
NCGM_32		Japan	2017	clinical	nasal cavity	other	25	16	8	33	7	13	16	12	24	56.2		

NCGM_35	Japan	2017 clinical	wound	wound infection	24	15	9	33	8	14	16	12	24	40.0
NCGM_33	Japan	2017 clinical	eye discharge	other	35	25	30	55	32	46	49	23	63	58.5
NCGM_36	Japan	2017 clinical	digestive organ	other	32	23	41	35	11	36	50	19	50	45.1
NCGM_37	Japan	2017 clinical	urine	urinary tract infection	53	36	37	75	41	60	67	15	59	36.1
NCGM_38	Japan	2017 clinical	urine	urinary tract infection	12	8	11	52	31	51	55	20	52	44.3
NCGM_39	Japan	2017 clinical	pharynx	other	28	18	26	46	22	41	24	21	42	50.4
NCGM_40	Japan	2017 clinical	skin	other	3	4	5	50	25	33	57	13	35	50.2
NCGM_41	Japan	2017 clinical	eye discharge	other	46	32	20	16	14	30	40	6	17	56.9
NCGM_42	Japan	2017 clinical	pharynx	other	3	4	5	50	25	33	57	13	35	50.8
NCGM_43	Japan	2017 clinical	eye discharge	other	31	21	18	18	13	28	41	5	16	61.6
NCGM_44	Japan	2017 clinical	urine	urinary tract infection	54	36	33	72	42	56	63	15	60	36.3
NCGM_45	Japan	2017 clinical	urine	urinary tract infection	5	5	3	47	23	33	58	13	36	51.4
NCGM_46	Japan	2017 clinical	vaginal discharge	other	3	4	5	50	25	33	57	13	35	53.3
NCGM_48	Japan	2017 clinical	wound	wound infection	26	17	25	45	21	40	25	21	43	49.5
NCGM_49	Japan	2017 clinical	skin	other	36	25	27	56	36	43	48	23	62	39.1
NCGM_50	Japan	2017 clinical	eye discharge	other	38	26	28	57	33	45	44	23	64	41.0
NCGM_53	Japan	2017 clinical	otorrhea	other	36	25	27	56	36	43	48	23	62	39.1
NCGM_54	Japan	2017 clinical	skin	other	36	25	27	56	36	43	48	23	62	39.2
NCGM_55	Japan	2017 clinical	urine	urinary tract infection	8	7	4	49	23	33	59	13	38	52.1
NCGM_56	Japan	2017 clinical	vaginal discharge	other	1	1	7	61	37	62	61	22	44	40.5
NCGM_57	Japan	2017 clinical	wound	wound infection	37	25	28	54	34	46	46	23	64	40.4
NCGM_58	Japan	2017 clinical	wound	wound infection	27	18	26	46	22	41	24	21	41	48.1
NCGM_59	Japan	2017 clinical	wound	wound infection	55	36	34	73	38	57	63	15	58	36.1
NCGM_60	Japan	2017 clinical	skin	other	3	4	5	50	25	33	57	13	35	50.0
NCGM_61	Japan	2017 clinical	eye discharge	other	28	18	26	46	22	41	24	21	42	47.8
NCGM_62	Japan	2017 clinical	otorrhea	other	49	35	23	26	17	25	38	7	27	56.8
NCGM_63	Japan	2017 clinical	skin	other	9	8	11	51	31	51	55	20	52	43.6
NCGM_64	Japan	2017 clinical	catheter	other	13	8	11	53	31	51	55	20	52	42.9
NCGM_65	Japan	2017 clinical	catheter	other	6	5	2	48	24	34	57	13	34	53.6
NCGM_67	Japan	2017 clinical	skin	other	36	25	27	56	36	43	48	23	62	39.1
NCGM_69	Japan	2017 clinical	sputum	urinary tract infection	16	11	24	20	16	20	33	7	28	56.7
NCGM_70	Japan	2017 clinical	eye discharge	other	56	36	37	71	39	61	66	15	57	37.3
NCGM_71	Japan	2017 clinical	wound	wound infection	7	6	6	50	26	33	59	13	37	51.2
NCGM_73	Japan	2017 clinical	wound	wound infection	9	8	11	51	31	51	55	20	52	42.1
NCGM_74	Japan	2017 clinical	urine	other	5	5	3	47	23	33	58	13	36	51.3
NCGM_75	Japan	2017 clinical	blood	other	41	29	21	38	29	32	28	7	54	49.6
NCGM_77	Japan	2017 clinical	eye discharge	other	47	32	20	16	14	30	40	6	18	57.3
NCGM_78	Japan	2017 clinical	skin	other	12	8	11	52	31	51	55	20	52	43.7
NCGM_79	Japan	2017 clinical	wound	wound infection	8	7	4	49	23	33	59	13	38	56.5
NCGM_80	Japan	2017 clinical	urine	urinary tract infection	27	18	26	46	22	41	24	21	41	47.5
NCGM_81	Japan	2017 clinical	blood	septicaemia	48	33	39	82	19	39	23	21	39	49.5
NCGM_83	Japan	2017 clinical	nasal cavity	other	3	4	5	50	25	33	57	13	35	52.2
NCGM_84	Japan	2017 clinical	eye discharge	other	39	27	28	59	33	47	47	23	64	40.7
NCGM_85	Japan	2017 clinical	vaginal discharge	other	32	23	41	35	11	36	50	19	50	46.0
NCGM_86	Japan	2017 clinical	CAPD tube	other	43	31	14	8	4	4	12	1	6	74.2
NCGM_87	Japan	2017 clinical	urine	urinary tract infection	15	11	24	20	15	20	33	7	28	56.4
NCGM_88	Japan	2017 clinical	vaginal discharge	other	27	18	26	46	22	41	24	21	41	47.9
NCGM_89	Japan	2017 clinical	urine	urinary tract infection	14	10	22	24	18	27	32	8	33	57.5
NCGM_90	Japan	2017 clinical	eye discharge	other	9	8	11	51	31	51	55	20	52	41.5
NCGM_91	Japan	2017 clinical	eye discharge	other	9	8	11	51	31	51	55	20	52	43.4
NCGM_92	Japan	2017 clinical	urine	urinary tract infection	12	8	11	52	31	51	55	20	52	43.8
NCGM_94	Japan	2017 clinical	vaginal discharge	other	17	11	24	20	15	20	33	7	29	55.1

NCGM_95	Japan	2017 clinical	otorrhea	other	46	32	20	16	14	30	40	6	17	54.3
NCGM_96	Japan	2017 clinical	eye discharge	other	46	32	20	16	14	30	40	6	17	55.3
NCGM_97	Japan	2017 clinical	urine	urinary tract infection	7	6	6	50	26	33	59	13	37	50.9
NCGM_98	Japan	2017 clinical	vaginal discharge	other	12	8	11	52	31	51	55	20	52	44.2
NCGM_99	Japan	2017 clinical	pituitary gland	meningitis	57	36	33	71	38	57	64	15	58	35.9
NCGM_100	Japan	2017 clinical	eye discharge	other	12	8	11	52	31	51	55	20	52	45.4

Alelle sequences are available in pubMLST website (https://pubmlst.org/bigsdb?db=pubmlst_pputida_seqdef)

Table S2. *Pseudomonas putida* strains harbouring drug resistant genes.

Isolate	Gene	Function
PP112420	<i>blaVIM</i>	metallo- β -lactamase
	<i>aac(6')-Ib-cr</i>	aminoglycoside
	<i>aac(6')-Ib3</i>	aminoglycoside
	<i>qnrVC6</i>	quinolone
	<i>sulI</i>	sulphonamide
HB3267	<i>blaVIM</i>	metallo- β -lactamase
	<i>aadA1</i>	Aminoglycoside resistance
	<i>strA</i>	Aminoglycoside resistance
	<i>aph(3')-Ia</i>	Aminoglycoside resistance
	<i>aac(6')-Ib-cr</i>	Fluoroquinolone and aminoglycoside resistance
	<i>ant(2'')-Ia</i>	Aminoglycoside resistance
	<i>aac(6')-Ib3</i>	Aminoglycoside resistance
	<i>aph(3'')-Ib</i>	Aminoglycoside resistance
	<i>aph(6)-Id</i>	Aminoglycoside resistance
	<i>cmlA1</i>	Phenicol resistance
	<i>sul2</i>	Sulphonamide resistance
	<i>sulI</i>	Sulphonamide resistance
	<i>tet(A)</i>	Tetracycline resistance
H8234	<i>strA</i>	Aminoglycoside resistance
	<i>aph(3'')-Ib</i>	Aminoglycoside resistance
	<i>aph(6)-Id</i>	Aminoglycoside resistance
DLL-E4	<i>sulI</i>	Sulphonamide resistance
PPJ_NCGM_012	<i>strA</i>	Aminoglycoside resistance
	<i>aph(3'')-Ib</i>	Aminoglycoside resistance
	<i>aph(6)-Id</i>	Aminoglycoside resistance
PPJ_NCGM_078	<i>sulI</i>	Sulphonamide resistance
PPJ_NCGM_092	<i>aac(6')-Iae</i>	Aminoglycoside resistance
	<i>blaCMY-8</i>	β -lactam resistance
	<i>ere(A)</i>	Macrolide resistance
	<i>sulI</i>	Sulphonamide resistance

Table S3. Allele frequencies of the MLST scheme for *Pseudomonas putida*

Allele	<i>argS</i>	<i>gyrB</i>	<i>ileS</i>	<i>nuoC</i>	<i>ppsA</i>	<i>recA</i>	<i>rpoB</i>	<i>rpoD</i>
1	1 -	-	-	-	-		1	10
2 -		2 -	-		1 -	-		2
3	1	1	2	3	1 -	-		1
4	1	1 -		5	1	1	2 -	
5	3	1 -		1 -		1	1 -	
6	1	1	1 -	-		1	2	4
7	1	1	2	1 -		1	9 -	
8	5	1	4	1	1 -		1	1
9 -		1	1	1	1 -	-		1
10	1	1	1	1	1 -		1 -	
11	4	5 -		1	2	1 -	-	
12	3 -	-		1	1	4	4 -	
13	1	1 -		1	2 -		6 -	
14	1	4 -		2	1	2 -		2
15	1	1	1	3 -		1	8 -	
16	1 -		2	1	1	2 -		1
17	1	1 -		1	1	1	1	1
18	2	1	1	1 -	-		1	1
19	1 -	-		1	1 -		3 -	
20	1	2	4	1	3	1	5 -	
21	1	1	2	1	1 -		5	1
22 -		1 -		2 -	-		1 -	
23	1	1 -		2	1	1	7	1
24	1	4	1	2 -		2 -		2
25	4	1 -		1	1	1 -		1
26	1	2	1	1 -		1	1 -	
27	1	1 -	-		1	1 -		1
28	1	3	1	1	1	1 -		3
29	1	1	1	1 -		1 -		1
30	1	1 -		1	2 -	-	-	
31	3	1 -		5	1	1 -		2
32	2	1 -		1	2	1 -	-	
33	1	2	3	2	4	4 -		1
34 -		1 -		1	2	2 -		2

35	1	1	1	1 -	-	-	1
36	8	1	1	1	1 -	-	1
37	1	2	1	1	1 -	-	1
38	2	1	1	4	1	1 -	1
39	2	1	1	1	2 -	-	1
40	1 -	-		1	1	2 -	1
41	1	1	1	1	2	1 -	1
42	2	1	1	1	1 -	-	1
43	1	1 -	-		1	1 -	1
44	1	1	1	1	1	1 -	1
45 -		1	1	1	1	1 -	-
46 -		2	2	1	4	1 -	1
47 -		1	1	1	1	1 -	-
48 -		2	2	1	1	1 -	1
49 -		1	1	1 -		1 -	1
50 -		1	2	2	1	1 -	1
51 -		2	1	1	5	1 -	1
52 -		1	3	1 -		1 -	4
53 -		1	1 -		1 -	-	1
54 -	-		1 -	-		1 -	1
55 -	-		1 -	-		4 -	1
56 -	-		1 -		2	1 -	-
57 -	-		1 -		2	2 -	1
58 -	-		1 -		1	1 -	3
59 -	-		1 -		1	3 -	3
60 -	-		1 -		1 -	-	1
61 -	-		1 -		1	1 -	1
62 -	-	-	-		1 -	-	2
63 -	-	-	-	-		2 -	1
64 -	-	-	-	-		3 -	3
65 -	-	-	-	-		1 -	-
66 -	-	-	-	-		1 -	-
67 -	-	-	-	-		1 -	1
68 -	-		1 -	-	-	-	-
71 -	-		4 -	-	-	-	-
72 -	-		1 -	-	-	-	-

73	-		1	-	-	-	-	
74	-		1	-	-	-	-	
75	-		1	-	-	-	-	
82	-		1	-	-	-	-	
Unique	40	48	48	47	47	48	18	48